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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/622,454   | 07/21/2003  | Hiroaki Furuya       | 240510US2TTC        | 5246             |
| 22850  | 7590        | 03/18/2008           |                     |                  |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      | EXAMINER            | AHMED, SHAMIM    |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 1792                |                  |
|  |             |                      | NOTIFICATION DATE   | DELIVERY MODE    |
|  |             |                      | 03/18/2008          | ELECTRONIC       |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
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|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/622,454             | FURUYA, HIROAKI     |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Shamim Ahmed           | 1792                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 12/28/07.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-5 is/are pending in the application.  
 4a) Of the above claim(s) 4 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-3 and 5 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____ .                        |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/29/07 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The term "at a normal temperature" in claim 5 is a relative term which renders the claim indefinite. The term " a normal temperature" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. So, the term "a normal temperature" is indefinite for the claimed invention.

***Response to Arguments***

5. Applicant's arguments filed 12/28/07 have been fully considered but they are not persuasive. Applicant argues that Spierings suggests that etching rate is slower and etching solution is weaker for removing small defects or microcracks as mentioned in the remarks section (page 4) and Niwayama describes a process for preventing or to avoid transferring foreign matter or depositing dust to the surface of a semiconductor substrate and therefore, does not teach the claimed invention.

In response to the argument, examiner states that the argument is not persuasive because Spierings et al teach that the glass substrate is flattened (less rough surface) by removing pits or cracks under different circumstances such as stronger etchant and weaker etchant can be used with two different etching rates (col.3, lines 10-col.4, lines 30). So, one of ordinary skilled in the art would recognize that faster etching rate would provide less processing time as suggested by Spierings et al (col.4, lines 12-13).

Niwayama discloses that two different type of etching solution is used in two separate etching tank, wherein the first etchant having faster etching rate than that of the second etchant (see the abstract and also the rejection) and using such separate etching tanks will reduce cross contamination by reducing attached foreign particles or the like as suggested by Nakayama.

Therefore, one of ordinary skilled in the art would have been motivated to combine both the teaching for cleaner and flattened surface as suggested by Niwayama.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spierings et al (6,045,715) in view of Niwayama (JP-09027469A).

Spierings et al disclose a process of chemically etching a glass substrate, which is used for liquid crystal display (LCD) device, which reads on claimed glass substrate and the term “used for” is considered to be an intended use of the glass substrate (abstract).

Spierings et al teach that the glass substrate is flattened (less rough surface) by removing pits or cracks under different circumstances such as stronger etchant and weaker etchant can be used with two different etching rates (col.3, lines 10-col.4, lines 30).

Spierings et al do not teach that the chemical treatment is performed by using two sequential steps namely first and second etching with first and second solution in first and second etching process machines, respectively.

However, Niwayama teach an etching process including the step of utilizing two different etching baths with two different etchant for having an etched surface with reduced foreign material on the substrate surface (see the abstract).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to modify Spierings et al's process by splitting the single step into the two sequential steps for efficiently removing contaminants or to achieve an improved etched substrate with reduced foreign materials on the substrate surface as taught by Niwayama.

As to claim 5, without showing any critical point or range of the temperature, it would have obvious to one of ordinary skilled in the art at the time of claimed invention to increase process temperature form the starting temperature, resemble as the claimed normal temperature of the etching solution because temperature is a result effective variable as the temperature increases the rate of removal is increases.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on Tu-Fri (12:30-10:30) Every Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shamim Ahmed/  
Primary Examiner, Art Unit 1792

SA  
Saturday, March 01, 2008